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REMARKS

Claims 1-20 were pending in this application. By the present Amendment, claims 10, 11, 15 and 20 have been canceled without prejudice or disclaimer, claims 12, 13 and 16 have been amended to depend from claim 1, claim 1 has been amended to include the features formerly recited in now-canceled claims 10 and 11, claim 14 has been amended to include the features formerly recited in now-canceled claim 15, and claim 19 has been amended to include the features formerly recited in now-canceled claim 20. Claims 1-9, 12-14 and 16-19 remain pending upon entry of this Amendment, with claims 1, 14 and 19 being in independent form.

The title was objected to as purportedly not sufficiently descriptive. Claims 1-15 were rejected under 35 U.S.C. § 101 as purportedly directed to subject matter not within statutory categories of patentable inventions.

By this Amendment, the application has been amended to address the formal matters referenced in the Office Action.

Withdrawal of the objection to the title and the rejection under 35 U.S.C. § 101 is requested.

Claims 1-4, 8-15, 19 and 20 were rejected under 35 U.S.C. § 102(b) as purportedly anticipated by Hata et al. (US 4,805,127). Claim 1, 5-12, 14, 15, 19 and 20 were rejected under 35 U.S.C. § 102(b) as purportedly anticipated by Staib et al., "Parametrically Deformable Contour Models". Claims 16-18 were rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over Hata in view of Barequet et al., "Piecewise-Linear Interpolation between Polygonal Slices". Claims 16-18 were rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over Staib in view of Barequet.

Applicant respectfully submits that the present application is allowable over the cited art,

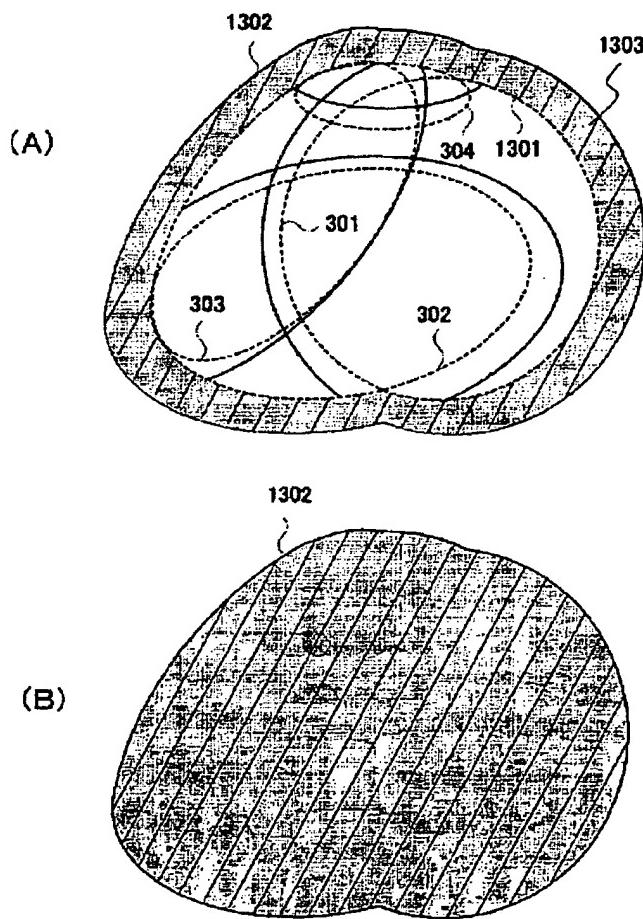
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for at least the reason that the cited art does not disclose or suggest the aspects of the present application of obtaining a second closed contour similar to a first closed contour by enlarging or reducing the first closed contour, and extracting a region including a stratified region held between the first closed contour and the second closed contour.

Such aspects are discussed in the application (see US 2007/0165952) at, for example, paragraphs [0079]-[0083], and original claims 10, 11, 15 and 20, and are illustrated in Fig. 13A (reproduced below).

FIG. 13



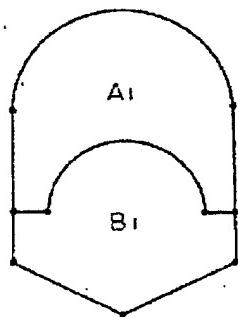
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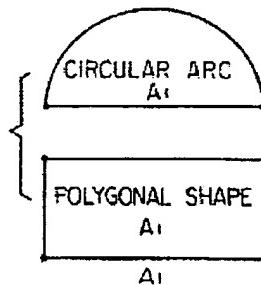
In the example illustrated in Fig. 13, second contour 1302 is obtained by enlarging first contour 1301, and a region including stratified region 1303 (encompassing a heart) is held between first contour 1301 and second contour 1302.

Hata, as understood by applicant, proposes an approach for describing (a boundary of an area in an image by encoding data from a combination of linear and arcuate primitives (Fig. 16). For example, in Fig. 26 (reproduced below) of Hata illustrating adjacent areas  $A_1$  and  $B_1$  [Fig. 26(a)] described by linear and arcuate segments extracted from polygonal shapes, the area  $B_1$  in

**FIG. 26(a)**



**FIG. 26(b)**



**FIG. 26(c)**

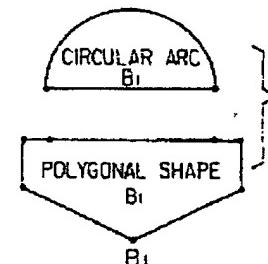


Fig. 26(a) includes one circular arc primitive extracted from a portion of the boundary of the semi-circle shown in the upper half of Fig. 26(c) and six linear primitives extracted from the polygonal shape shown in the lower half of Fig. 26(c). On the other hand, the area  $A_1$  in Fig. 26(a) includes two circular arc primitives 31 (one shared with  $B_1$ ) and four linear primitives 30 (two shared with  $B_1$ ). Note that the extracted primitives constitute only portions of the boundaries of and do *NOT* form the *closed* polygonal shapes shown in Figs. 26(b) and 26(c).

Such approach illustrated in Fig. 26 clearly does NOT disclose or suggest obtaining a second *closed* contour similar to a first closed contour by enlarging or reducing the first closed

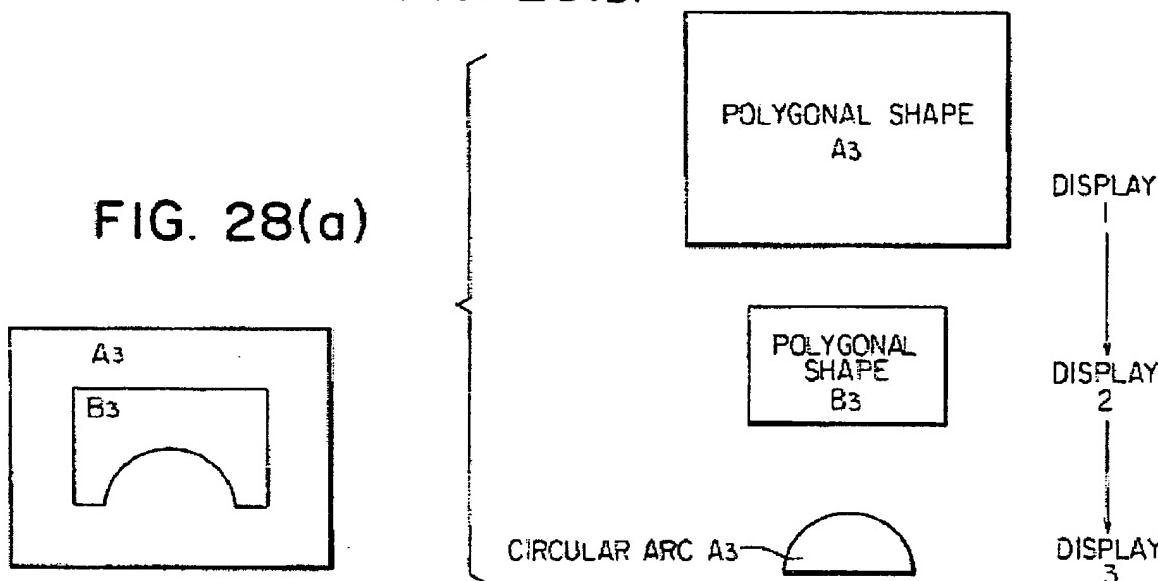
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contour, nor extracting a region including a *stratified region* held between the *first closed contour and the second closed contour*.

Likewise, in the example of Fig. 28 (reproduced below) of Hata, primitives are extracted from the rectangles and the semicircular shape to form the shapes A<sub>3</sub> and B<sub>3</sub> illustrated in Fig. 28(a).

FIG. 28(b)



It is contended in the Office Action that one rectangular shape in Fig 28(b) is a reduction of the other rectangular shape. Applicant disagrees and maintains that such contention regarding the appearance is merely a matter of subjective interpretation.

Fig. 28 is discussed at column 12, lines 12-21 of Hata (reproduced below), and contrary to the contention in the Office Action, Hata says nothing regarding one rectangular shape in Fig 28(b) being a reduction of the other rectangular shape.

FIG. 28(a) the area B<sub>3</sub> is described by a polygonal graphic command B<sub>3</sub> and a circular arc graphic command A<sub>3</sub> having the same color or tone value as that of the area A<sub>3</sub> and corresponding to the concave circular arc primitive 31, and the polygonal

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graphic command  $A_3$ , the polygonal command  $B_3$ , and the circular arc command  $A_3$  are displayed in the sequence shown in FIG. 28(b). In this case, the color value or the tone value of the circular arc command  $A_3$  is decided with reference to the adjacent relation data 50 and by searching for the area surrounding the island.

In any event, the shapes  $A_3$  and  $B_3$  formed by the extracted data and illustrated in Fig. 28(a) clearly are NOT similar to each other in that one is a reduced version of the other, since  $B_3$  includes a semi-circular segment that has no counterpart in  $A_3$ .

Hata simply does NOT disclose or suggest obtaining a second closed contour similar to a first closed contour by *enlarging or reducing the first closed contour*, nor extracting a region including *a stratified region held between the first closed contour and the second closed contour* (such as for extracting the surface region of a heart).

In the present application, a first closed contour is made by combining at least a partial contour of the respective element graphics after approximating at least the partial contour of the element graphic to at least a partial contour of the partial region, second obtain a second closed contour similar to the first closed contour by enlarging or reducing the first closed contour, and finally extracts the region including a stratified region held between the first closed contour and the second closed contour. By doing so, through performing a desired image processing on the specified region by the method for extracting the organ region related to the present invention, it is possible to perform an efficient and accurate image processing in a short period of time. Especially in the case of obtaining an image of a blood vessel such as a coronary artery running on the cardiac surface region, a clear and satisfactory image can be efficiently obtained by extracting only the surface region of a heart by the present invention.

Applicant submits that the cited art (including Staib and Barequet), even when considered along with common sense and common knowledge to one skilled in the art, does *NOT* render

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unpatentable the above-mentioned aspects of the present application.

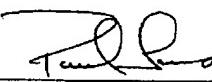
Accordingly, applicant respectfully submits that independent claims 1, 14 and 19, and the claims depending therefrom, are allowable over the cited art.

In view of the remarks hereinabove, applicant submits that the application is allowable. Accordingly, applicant earnestly solicits the allowance of the application.

However, if the Examiner can suggest a further amendment that would advance this application to condition for allowance, the Examiner is respectfully requested to call the undersigned attorney.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Patent Office is hereby authorized to charge any required fees in connection with this amendment, and to credit any overpayment, to our Deposit Account No. 03-3125.

Respectfully submitted,

  
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